

WHAT IS CLAIMED IS:

1. A liquid ejection recording head for
effecting recording by ejecting first liquid and
second liquid which is a different kind of liquid
5 through different ejection outlets, while bi-
directionally scanning a recording material in a
scanning direction, comprising:

a group of first ejection outlet arrays each
of which has a plurality of ejection outlets at
10 predetermined intervals arranged in a direction
different from the scanning direction, wherein
corresponding ejection outlets in the respective
ejection arrays are aligned in the scanning direction;

15 a group, disposed adjacent said group of said
first ejection outlet arrays, of second ejection
outlet arrays arranged in a manner similar to said
first ejection outlet array group;

20 wherein said first ejection outlet arrays
include a first ejection outlet array for ejecting the
first liquid and a second ejection outlet array for
ejecting the second liquid;

25 wherein said second ejection outlet arrays
include a third ejection outlet array for ejecting the
first liquid and a fourth ejection outlet array for
ejecting the second liquid;

wherein said first ejection outlet array
group and said second ejection outlet array group are

disposed such that first ejection outlet array and third ejection outlet array are adjacent to each other and that ejection outlets of said first ejection outlet array and the ejection outlets of said third ejection outlet array are disposed with deviation in a direction of arrangement of the ejection outlets so as to be complementary to each other in the scanning direction.

10 2. An apparatus according to Claim 1, further comprising a common liquid chamber for supplying the first liquid to said first ejection outlet array and said third ejection outlet array.

15 3. An apparatus according to Claim 1, wherein said first ejection outlet array group and said second ejection outlet array group are provided with ejection outlet arrays for ejecting third liquid which is different from the first liquid and from the second liquid.

20 4. An apparatus according to Claim 3, wherein the first liquid is yellow ink, the second ink and third ink are cyan ink and magenta ink.

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5. An apparatus according to Claim 1, wherein the ejection outlet arrays of said first ejection

outlet array group and said second ejection outlet array group are arranged such that kinds of the liquid are symmetrical with respect to said first and third ejection outlet arrays.

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6. An apparatus according to Claim 1, further comprising a fifth ejection outlet array, in addition to said first and second ejection outlet array, for ejecting liquid which is a kind of liquid different
10 from the liquid ejected through said first and second ejection outlets.

7. An apparatus according to Claim 6, wherein the liquid ejected from said fifth ejection outlet
15 array is black ink.

8. An apparatus according to Claim 1, wherein said first ejection outlet array group and said second ejection outlet array are provided in one orifice
20 plate.

9. An apparatus according to Claim 1, further comprising a plurality of energy conversion element array groups for ejecting the liquid through said
25 first ejection outlet array group and a plurality of energy conversion element array groups for ejecting the liquid from said second ejection outlet array

group.

10. An apparatus according to Claim 9, wherein
said substrate has a crystal face orientation of
5 <100>.

11. An apparatus according to Claim 9, wherein
said substrate has a crystal face orientation of
10 <110>.

12. A liquid ejection head according to Claim 10
or 11, wherein said substrate is provided with a
plurality of through-holes for supplying the liquid to
the ejection outlet arrays, and said through-holes are
15 formed by anisotropic etching.

13. An apparatus according to Claim 8, wherein
said orifice plate is made of photosensitive epoxy
10 resin material.

14. An apparatus according to Claim 9, wherein
said energy conversion element groups are groups of
electrothermal transducers for generating thermal
energy for ejecting the liquid through said ejection
25 outlets.

15. A liquid ejection apparatus comprising a

carriage for carrying said liquid ejection recording head as defined in Claim 1.

16. A liquid ejection recording head for
5 effecting recording by ejecting first liquid and
second liquid which is a different kind of liquid
through different ejection outlets, while bi-
directionally scanning a recording material in a
scanning direction, comprising:

10 an orifice plate provided with a plurality of
ejection outlet arrays each having a plurality of
ejection outlets arranged at a predetermined intervals
in a direction different from the scanning direction;

15 an element substrate having energy conversion
elements, disposed corresponding to the ejection
outlets of said orifice plate, for ejecting liquid,
liquid supply paths for supplying the liquid to said
ejection outlet arrays of said orifice plate, and a
driving circuit for driving said energy conversion
elements; and

20 wherein said ejection outlet arrays include a
first ejection outlet array for ejecting second
liquid, a second ejection outlet array for ejecting
first liquid, a third ejection outlet array
25 for ejecting the first liquid and a fourth ejection
outlet array for ejecting the second liquid arranged
in the order named in the scanning direction, and

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wherein a supply passage for supplying the first liquid supplies to said second ejection outlet array and said third ejection outlet array.

5 17. An apparatus according to Claim 16, wherein said energy conversion elements are electrothermal transducer elements for generating thermal energy for ejecting liquid from said ejection outlet.

10 18. A liquid ejection apparatus comprising a carriage for carrying said liquid ejection recording head as defined in Claim 16.

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